

What is claimed is:

1. An optical transmitter, comprising:

a) a light-emitting device for emitting light;

5 b) an optical splitter for splitting the light emitted from the light-emitting device;

c) a dispersion controller having a first dispersion generator and a waveform monitor, the first generator receiving a portion of light emitted from the light-emitting device and split by the optical splitter, adding a
10 predetermined dispersion to the split light, and outputting dispersed light to the waveform monitor; and

d) a processing unit for maintaining the dispersed light output from the first dispersion generator to have the predetermined quality.

15 2. The optical transmitter according to claim 1, wherein the waveform monitor monitors the dispersed light as an eye-diagram, and the predetermined quality is defined by an opening of the eye-diagram.

20 3. The optical transmitter according to claim 1, wherein the light-emitting device is a semiconductor laser diode for emitting light by supplying a modulation current and a bias current, and the processing unit controls the dispersion of the light-emitting device by controlling at least one of the bias current and the modulation current
25 to the light-emitting device.

4. The optical transmitter according to claim 1,

further comprises a second dispersion generator for adding a dispersion to the light emitted from the light-emitting device and outputting a dispersed light to the optical splitter, the processing unit controlling the dispersion of the second dispersion generator so as to maintain the dispersed light output from the first dispersion generator to have the predetermined quality.

5 5. An optical transmission system, comprising:
a transmitting station having an optical transmitter;
10 a receiving station having an optical receiver;
at least two optical path for connecting the transmitting station and the receiving station; and
a central station for controlling the optical transmission system,

15 wherein the central station, when a fault occurs in one of the optical path connecting the transmitting station to the receiving station and the other of the optical path is selected, sends a dispersion based on the other of the optical path to the transmitting station, and

20 wherein the optical transmitter outputs a dispersed light so as to compensate the dispersion due to the other of the optical path.

 6. The optical transmission system according to claim 5, wherein the optical transmitter comprises:

25 a light-emitting device for outputting an optical signal;

a first dispersion generator for adding the dispersion sent from the central station to a portion of the optical signal output from the light-emitting device and for outputting a dispersed optical signal; and

5 a processing unit for controlling the light-emitting device so as to compensate the dispersed optical signal output from the first dispersion generator to have a predetermined quality.

7. The optical transmission system according to claim
10 5, wherein the optical transmitter comprises:

a light-emitting device for outputting a first optical signal;

a second dispersion generator for outputting a second optical signal added a dispersion to the first optical signal
15 output from the light-emitting device;

a first dispersion generator for adding the dispersion send from the central station to a portion of the second optical signal output from the second dispersion generator and for outputting a dispersed optical signal; and

20 a processing unit for controlling the second dispersion generator so as to compensate the dispersed optical signal output from the first dispersion generator to have a predetermined quality.

8. The optical system according to claim 7, wherein
25 the light-emitting device is a semiconductor laser diode for outputting the first optical signal by supplying a bias

current and a modulation current, and

wherein the processing unit controls at least one of the bias current and the modulation current to maintain the dispersed optical signal output from the first dispersion generator to have the predetermined quality.

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